

I regret that my geological knowledge does not enable me to give a scientific description of a district that I am sure would well repay a visit to a good geologist. One member of our Institute, Dr. Mueller, will, I trust, give us what no one but himself can—for no botanist but himself has been in the neighbourhood—an account of the vegetable kingdom of the Lake Torrens District.

III.

ON STATISTICAL SANITARY PROCESSES.

BY W. H. ARCHER,

ASSISTANT REGISTRAR-GENERAL.

READ SEPTEMBER 26, 1854.

THE Council of the Victorian Institute having honoured Dr. Maund and myself with the task of reporting on "Sanitary Processes," and especial invitation having been made to me to initiate the subject this evening, I purpose to show briefly the groundwork on which all sanitary systems in this Colony should be based, or in other words, our PROCESSES of INFORMATION, or how we must get at our facts.

For several years past,—in fact, ever since a Registrar General's Department has existed in London, the public mind in Great Britain and other countries has from time to time been agitated by startling revelations of the prevalence of recurrent forms of disease in certain localities, which seemed to be the very hot-beds of typhus and cholera, and other

diseases of the same hideous family. The public alarm soon manifested itself in the shape of meetings and discussions; and House of Commons' Committees, and Poor Law Commissioners, and Special Sanitary Commissioners appointed by Her Majesty, and Voluntary Commissions in the shape of Health of Towns' Associations, inspected and reported with a vigour,—the good results of which were, and are, certainly lamentably slow in coming about.

It is not my intention this evening, to enter into a detail of the misconceptions in theory and the mistakes in fact, made by the first agitators of the Public Health Movement; I hope on another occasion to have the opportunity of pointing out the rocks on which they split, much to the injury of a good cause. It will be satisfactory, however, to state that we in this Colony are in possession of materials and advantages that they had not, and it will be our fault if the progress of the Science of Vital Statistics should become impeded by unnecessary obstructions.

When I had the honour of being requested by the Government to draw up a general plan of registration, about eighteen months ago; on examining the schedules appended to the Act xvi. Vict. No. 26, known as the Registration Act, I found very important statistical omissions in every one of the schedules. For example, in the MARRIAGE Schedule the AGES of the Bride and Bridegroom were omitted; in the BIRTHS' Schedule, the ages of the Parents, the date of their marriage, and the number and sex of their former children were not asked for; and in the DEATHS' Schedule the duration of the last illness, as certified by a medical attendant was wanting; also, the time of residence in the Colony, and if deceased were married, the period of marriage, and a list of the issue living and dead, with their ages.

Now every one of these points has an importance that can only be duly appreciated by Actuaries, in calculating tables of mortality, and the values of life-contingencies dependent

thereon; and by Vital Statisticians, who have hitherto sought for such authentic information in vain. To the honour of Government, be it said, the suggestions made for the introduction of the above points into the schedules were promptly agreed to, and the consequence is that VICTORIA has commenced a system of registration more comprehensive in its scope and scientific in its detail than any hitherto carried out in any part of the world.

Apart from the legal value of the minute and varied information contained in these and similar returns, there may be made a long list of important scientific results deducible from them, when taken in connexion with the ascertained living population existing at the period for which such returns are made. First, in the Birth Schedule, by the birth-place, age, and date of marriage of the parents, and the number and ages of former children being given, some valuable problems may be solved *for the first time*; for example:—

1. What relation is there with regard to the ages of parents at the time of marriage and the number of after issue?
2. What is the rate of mortality among children generally; and also in family groups?
3. Are male or female children most difficult to rear? and which are the more fatal periods of age for each?
4. What influence has the varying age of the parents over the sex of their children?
5. Is there any, and what, difference in the rate of birth, or mortality, or proportion of either sex in the children of persons of different races, as for example, among the English, Irish, &c.?

From the Death's Schedule, in like manner, may be determined—

1. The healthiness or unhealthiness of the Colony generally, and of specific localities therein.
2. By the causes of death being given, the extent and fatality of each disease may be ascertained.

3. Tables of sickness, mortality, probability, and expectation of life, may be formed for purposes of friendly societies, for life assurances, annuities, reversions, leases on lives, endowments, and other objects of first importance to the community.
4. The influence of occupation on life may be determined.
5. The place of birth and length of residence in the Colony being given, the duration of life of the *advenæ* or immigrants may be found in contrast with that of the native born.
6. By the two last columns furnishing the ages of marriage of parents, and a list of their issue, similar valuable results may be obtained with regard to the rate of mortality among children, &c., and the influence of the parents ages at time of marriage, on the longevity of their progeny; and further, by the number of children shown as living or dead since the arrival of the parents in the Colony, the influence of the climate, &c., on European, or other children born out of the Colony, will be determinable as well as with regard to natives.

From the MARRIAGE schedules, by means of the ages, the birth-place, and the civil and social condition of the parties being given, various questions in relation to the present and future political state of the population can be answered, and additional light is thrown on the path of the Statist in his efforts to arrive at the laws of birth, disease, and death, as they variously affect the different members of the human family.

SCHEDULE A.

1853. BIRTHS in the District of BOURKE, in the COLONY of VICTORIA. Registered by Thomas Johnson, Deputy Registrar.
For the Quarter beginning on the 1st day of July, and ending on the 30th day of September.

No.	Child.		Parents.		Informants.	Registrar.		Witnesses.	
	When and where born.	Name, and whether present or not	Sex.	Father.		Mother.	When registered and Where.		Signature of Deputy Registrar.
7	Eighth of June 1853, at Little Lonsdale st., Melbourne.	William. (present.)	Male	(1) George Fox. (2) Stonemason. (3) Age, 50 years (4) Liverpool, England.	(1) Name and Surname, Profession of the Father. (2) Age, and Birthplace. (1) 16th of May, 1832, Liverpool, England. (2) Francis, 12 Fanny, 17 Charles, 16 Thomas, 14 George, 12 Mary, 11 Timothy, 9 John, 7 Betsy, 4 All living. Arthur, 2 Dead	(1) Name and Maiden surname of the Mother, (2) Age, and (3) Birthplace. (1) Mary Fox, Maiden name, Williamson. (2) 44 years (3) Liverpool, England.	Signature, Description, and Residence of Informants. (Signed) George Fox, the Father, Little Lonsdale street, Melbourne.	Sixth of August, 1853, Melbourne. (Signed) Thomas Johnson, Deputy Registrar.	(1) Accoucheur (2) Nurse by whom certified, and (3) Signatures of Occupier or other Witnesses. (1) Edward Jones, M.D. (2) Mary Jackson, Nurse. (3) _____

NOTE.—The names of persons and localities are changed, but otherwise the above is a correct copy.

SCHEDULE B.

1853. DEATHS in the District of **BOURKE**, in the COLONY OF VICTORIA. Registered by **Thomas Johnson**, Deputy Registrar.
For the Quarter beginning on the 1st day of July, and ending on the 30th day of September.

No.	Description.		(1) Cause of Death. (2) Duration of last illness. (3) Medical Attendant by whom certified and (4) when he last saw deceased.	Name and Surname of Father, if known, with Rank or Profession.	(1) Signature and Description, and Residence of Informant, and (2) Witness.	(1) Signature (Signed) (1) Thomas Johnson. (2) 3d of August, 1853, at Melbourne. (3) Melbourne.	IF BURIAL REGISTERED.		Where born, and how long in the Australian Colonies, and which.	If Deceased was Married.	
	When and where died.	Name and Surname, Rank or Profession.	Sex and Age.				Ween and where buried. Undertaker by whom certified.	Name and Religion of Minister, or name of Witnesses of Burial.		(1) Where, and at what (2) age, and (3) to whom.	Issue in order of Birth, their Names and Ages.
	First of August 1853, at Bourke Street, Melbourne.	Jane Smith, wife of informant	Female. Fifty-seven years.	(1) Hepatitis. (2) Seventy-eight days. (3) Edward Jones, M.D. (4) On the thirty-first of July, 1853.	(Signed) John Smith, a Printer, residing at Bourke Street Melbourne, and husband of the deceased (2) Jas. Jones.	(Signed) Thomas Johnson. (2) 3d of August, 1853, at Melbourne. (3) Melbourne.	Buried on the 4th of August, 1853, in the New Cemetery, Melbourne. Burial Certified by George Thompson, Undertaker, Melbourne.	James Harvey, Minister of the Church of England, Melbourne. Witness of Burial, George Thompson, Undertaker.	Born at Scarborough, Yorkshire, on the 2d of February, 1797. Arrived in the Colony of Victoria, per ship "London," on the 10th of July, 1852.	Married at Scarborough, on the 6th of July, 1825, at twenty-eight years of age, to John Smith, of Scarborough, Yorkshire, Henry born on 29th Oct. 1835. David born on 5th May 1838. John born on 5th Jan. 1844. Died 12th March, 1845.	Peter born on 30th June, 1826. George born on 30th Nov 1827. Jane born on 10th Oct. 1829. Thomas born on 19th Oct. 1831. Mary born on 12th Aug. 1833. Henry born on 29th Oct. 1835. David born on 5th May 1838. John born on 5th Jan. 1844. Died 12th March, 1845.

NOTE.—The Names and Localities are changed, but otherwise the above is a correct copy.

SCHEDULE C.

1853. MARRIAGES solemnized in the District of Bourke, in the COLONY OF VICTORIA, by the Reverend James Harvey.
For the Quarter beginning on the 1st day of July, and ending on the 30th of September.

No.	When and where Married.	Name and Surname of the Parties.	CONDITION OF PARTIES.					Rank or Profession.	Age.	RESIDENCE.		Parents.		Rank or Profession.
			If a Widower or Widow, date of decease of former Husband or Wife,	Children by each former Marriage.		Birthplace.	Present.			Usual.	Names.			
Living	Dead.													
2d February, 1853.	St. James' Church, Melbourne. By License.	John Green	Widower (1st June, 1850.)	3	1	Liverpool	Carpenter	32	Collins street, Melbourne	William Green, and Mary Green, deceased, (Maiden name, Jones)				Carpenter
		Mary Dunn	Spinster			Deilham, Essex	Dress-maker	28	Bourke Street, Melbourne	Edward Dunn Jane Dunn, (Maiden name, Smith)				Grocer Schoolmistress

FORM OF DECLARATION.

We do hereby declare that we are Members of the Church of England.

Married in St. James' Church, Melbourne, according to the rites and ceremonies of the Church of England, by me,
James Harvey, Officiating Minister.

This Marriage was solemnized } John Green.
between us, } Mary Dunn.
In the presence of { James Johnson.
Sarah Adams.

NOTE.—The names and localities are changed, but otherwise the above is a correct copy.

From what is here seen, it appears to me you will have no difficulty in coming to the conclusion, that in these processes of information, namely, the Government returns of Births, Marriages and Deaths, exist the very best materials for Sanitary and other researches. The next point will be to apply this information in a scientific way; and here we meet the peculiar difficulties of this path of the domain of truth. But, as I said at the commencement, it is not my intention to touch these to-night, but simply to content myself with remarking, that the first step to be taken to arrive at the healthiness or unhealthiness of any particular locality, (as for example, the City of Melbourne) after the establishment of a broad registration system, is carefully to divide that locality into clear, well-defined districts, and to ascertain the relative ages, proportions of the sexes, and occupations of the inhabitants of each district; and I would earnestly recommend the Institute to use all its energies for the determination of these points, which are of capital importance; but once being done, will with the aid of the registration returns leave little to be desired in the way of fundamental operations.

W. H. ARCHER.